

# Danru Xu



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## Educational Background

Ph.D. | 03/2023-03/2027 (planned) | University of Amsterdam

- **Supervisors:** Paul Groth, Sara Magliacane
- **Topics:** Causal representation learning and multimodal data fusion

Master | 02/2021-12/2022 | University of Melbourne | Master of Science (Mathematics and Statistics)

- **Weighted Average:** 86.50/100 (H1 Level)
- **Main Subjects:** Systems Modelling and Simulation, Statistical Modeling, Bayesian Statistical Learning, Mathematical Statistics.
- **Scholarship:** Master's Mathematics and Statistics School Scholarship\*3.

Bachelor | 09/2016-06/2020 | Chongqing University | Statistics

- **GPA:** 3.60/4.00 (top10%)
- **Scholarship:** Comprehensive Scholarship\*3; 2018 Zhu Jingwen Scholarship; 2020 Qianfeng Scholarship.
- **Honor:** 2017—2018 Excellent Student of Chongqing University; Outstanding Students Cadre.

## Exchange Experience

- 12/07/2019-16/11/2019 | Study Abroad Program | University of Queensland | Faculty of Science
- 22/02/2018-30/06/2018 | School-funded exchange student | National Taiwan University | Faculty of Mathematics

## Project & Competition

Graduate Research project | 07/2021-12/2022

### Causal Inference – NOTEARS without fixed threshold

- Investigate whether the fixed-threshold strategy in NOTEARS performs well on the coefficients near zero.
- Propose a totally data-driven method that does not need a pre-setting threshold and illustrate the specific algorithm.
- The performance on learning small coefficients can be improved when the edge weights are generated from a broader range which contains zero such as gaussian distribution with mean zero.
- Study the oracle properties our method possesses, including sparsity and asymptotic normality, which means our method has the ability to select the right subset model and converge to the true model with an optimal rate when sample size increases.
- [Writing Sample Link](#)

Undergraduate Research project | 11/2019-06/2020

### Image Classification Model

- Learn the classical Convolutional Neural Network models AlexNet and Resnet50 in the environment of TensorFlow (python) based on the large image dataset ImageNet. .
- Reimplement those two models based on the mini version of ImageNet dataset.
- Transfer Learning on AID dataset: based on the parameters of the RESNET50 model obtained from the above training, three fine-tuning schemes were designed to achieve high classification accuracy on AID dataset by adjusting the value of hyperparameters and the initial value of trainable parameters.

Mathematical Contest In Modeling | Meritorious Winner | 04/2018

### The model of the population of each language

- Collect related data, clean the data and restructure data.
- Build prediction model and estimate parameters based on logistic regression.
- Carry out sensitive analysis and using the robust model to make prediction.
- Complete thesis to demonstrate the research process and results.

## **Extracurricular Activities**

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09/2017-09/2018 | Science & Technology Association of M&S Department | Chairman  
09/2016-09/2018 | Debate team of M&S Faculty

## **Language Proficiency & Computer Skills**

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NCRE (office) ; CET6 ; IELTS 7.5 (S8 R8 L7.5 W6) .